

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

VANTAGE MICRO LLC,

Plaintiff,

v.

**RENESAS ELECTRONICS
CORPORATION and RENESAS
ELECTRONICS AMERICA INC.,**

Defendants.

Civil Action No. 6;19-cv-00585

DEMAND FOR JURY TRIAL

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Vantage Micro LLC (“Vantage Micro” or “Plaintiff”) hereby alleges for its Complaint for patent infringement against Defendants Renesas Electronics Corporation (“Renesas Japan”) and Renesas Electronics America Inc. (“Renesas America”) (collectively “Renesas” or “Defendants”) on personal knowledge as to its own actions and on information and belief as to the actions of others, as follows:

NATURE OF THE ACTION

1. This is an action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. § 1 *et seq.*

THE PARTIES

2. Plaintiff Vantage Micro is a limited liability company organized under the laws of the State of Delaware, with its principal place of business at 717 North Union Street, Suite 9, Wilmington, DE 19805.

3. On information and belief, Defendant Renesas Electronics Corporation (“Renesas Japan”) is a corporation organized under the laws of Japan, with its principal place of business at Toyosu Foresia, 3-2-24 Toyosu, Koto-ku, Tokyo 135-0061, Japan. Renesas Japan conducts business in, and is doing business in, Texas and in this District and elsewhere in the United States, including, without limitation, promoting, offering to sell, importing, and/or selling infringing products (as alleged herein) in Texas and in this District.

4. On information and belief, Defendant Renesas Electronics America Inc. (“Renesas America”) is a corporation organized under the laws of the State of California, with its principal place of business at 2801 Scott Boulevard, Santa Clara, CA 95050. Renesas America is authorized to do business in Texas and may be served through its registered agent CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201. Upon information and belief, Renesas America is a wholly-owned subsidiary of Renesas Japan.

5. Renesas’s product portfolio covers a broad range of semiconductors — from discrete transistors and diodes to 32-bit microprocessors and microcontrollers as well as analog integrated circuits (“ICs”), system-on-chip (“SoC”) devices, and standard-cell ASICs. Renesas has focused its efforts on three areas: microcontrollers; SoC solutions; and analog and power devices.

6. Renesas America conducts and is doing business in Texas and in this District and elsewhere in the United States, including, without limitation, using, promoting, offering to sell, importing, and/or selling infringing products (as alleged herein) in Texas and in this District. In particular, Renesas America has what it calls the TX Design Center located at 900 S. Capital of Texas Hwy, Las Cimas IV, Suite 250, Austin, TX 78746.

7. Vantage Micro is the assignee and owner of the patents at issue in this action: U.S. Patents Nos. 6,678,838, 7,414,606, 6,546,508, and 9,959,593 (collectively, the “Asserted Patents”). Vantage Micro holds all substantial rights, title, and interest in the Asserted Patents, including the exclusive right to sue Renesas for infringement and recover damages, including damages for past infringement.

8. Vantage Micro seeks monetary damages and prejudgment interest for Renesas’s past and ongoing direct and indirect infringement of the Asserted Patents.

JURISDICTION AND VENUE

9. This action for patent infringement arises under the patent laws of the United States, Title 35 of the United States Code.

10. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

11. This Court has personal jurisdiction over Renesas because Renesas has sufficient minimum contacts with the forum as a result of business conducted within the State of Texas and within this District. For example, Renesas has the TX Design Center located at 900 S. Capital of Texas Hwy, Las Cimas IV, Suite 250, Austin, TX 78746. Personal jurisdiction also exists specifically over Renesas because Renesas, directly or through subsidiaries or intermediaries, makes, uses, offers for sale, imports, or sells products or services within the State of Texas and within this District that directly or indirectly infringe the Asserted Patents.

12. Furthermore, personal jurisdiction over Renesas in this action comports with due process. Renesas has conducted and regularly conducts business within the United States and this District. Renesas has purposefully availed itself of the privileges of conducting business in the United States, and more specifically in the State of Texas and this District. Renesas has sought protection and benefit from the laws of the State of Texas by placing infringing products into the stream of commerce through an established distribution channel with the awareness and/or intent

that they will be purchased by consumers in this District. Having purposefully availed itself of the privilege of conducting business within this District, Renesas should reasonably and fairly anticipate being brought into court here.

13. Venue is proper in this Court pursuant to 28 U.S.C. §§ 1391 and 1400(b) at least because Renesas Japan is a foreign corporation and is subject to jurisdiction in this District, because Renesas is subject to personal jurisdiction in this district and has regularly conducted business in this District, and because certain of the acts complained of herein occurred in this District. On information and belief, Renesas makes, uses, sells, offers to sell, and/or imports, within the state of Texas and in this District, products that infringe one or more claims of the Asserted Patents.

THE ASSERTED PATENTS

14. On January 13, 2004, the United States Patent and Trademark Office (“USPTO”) duly and legally issued U.S. Patent No. 6,678,838 (“the ’838 Patent”), entitled “Method to Track Master Contribution Information in a Write Buffer.” A copy of the ’838 Patent is attached hereto as Exhibit 1.

15. Vantage Micro owns all substantial right, title, and interest in the ’838 Patent, and holds the right to sue and recover damages for infringement thereof, including past infringement.

16. On August 19, 2008, the USPTO duly and legally issued U.S. Patent No. 7,414,606 (“the ’606 Patent”), entitled “Method and Apparatus for Detecting a Flat Panel Display Monitor.” A copy of the ’606 Patent is attached hereto as Exhibit 2.

17. Vantage Micro owns all substantial right, title, and interest in the ’606 Patent, and holds the right to sue and recover damages for infringement thereof, including past infringement.

18. On May April 8, 2003, the USPTO duly and legally issued U.S. Patent No. 6,546,508 (“the ’508 Patent”), entitled “Method and Apparatus for Fault Detection of a Processing Tool in an Advanced Process Control (APC) Framework.” A copy of the ’508 Patent is attached hereto as Exhibit 3.

19. Vantage Micro owns all substantial right, title, and interest in the ’508 Patent, and holds the right to sue and recover damages for infringement thereof, including past infringement.

20. On May 1, 2018, the USPTO duly and legally issued U.S. Patent No. 9,959,593 (“the ’593 Patent”), entitled “Memory Controller Having Plurality of Channels that Provides Simultaneous Access to Data When Accessing Unified Graphics Memory.” A copy of the ’593 Patent is attached hereto as Exhibit 4.

21. Vantage Micro owns all substantial right, title, and interest in the ’593 Patent, and holds the right to sue and recover damages for infringement thereof, including past infringement.

COUNT I - INFRINGEMENT OF U.S. PATENT NO. 6,678,838

22. Vantage Micro incorporates and realleges the preceding paragraphs as if fully set forth herein.

23. At least as of May 14, 2019, Vantage Micro placed Renesas on actual notice of the ’838 Patent and actual notice that its actions constituted and continued to constitute infringement of the ’838 Patent. Renesas has had actual knowledge of the ’838 Patent and its own infringement of the ’838 Patent since at least that time.

24. Renesas has infringed one or more claims of the ’838 Patent, including but not limited to Claim 11, pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, at least by using electronic products wherein multiple masters (including but not limited to computer processors, processor cores, graphics processors, and noncore master peripherals) write

data to a memory (including but not limited to shared memory), where the memory includes information to associate a master with the data (“’838 Infringing Products”).

25. Discovery is expected to uncover the full extent of Renesas’s infringement of the ’838 Patent beyond the ’838 Infringing Products already identified through public information.

26. Attached hereto as Exhibit 5, and incorporated by reference herein, is a claim chart detailing how a ’838 Infringing Product, Renesas RZ/G2H 64-Bit MPU, satisfies each element of independent Claim 11 of the ’838 Patent. On information and belief, any use of the Renesas RZ/G2H 64-Bit MPU necessarily practices the claimed method of the ’838 Patent.

27. On information and belief, Renesas induced infringement of one or more claims of the ’838 Patent, including, but not limited to Claim 11, pursuant to 35 U.S.C. § 271(b), by encouraging its customers of the ’838 Infringing Products and other third parties (including, *inter alia*, the downstream customers of its customers) to make, use, sell, offer to sell, and/or import in the United States without authorization the ’838 Infringing Products (or products of which the ’838 Infringing Products are components). Renesas has engaged in acts of inducement with the knowledge (at least as of May 14, 2019) that such actions constituted infringement of one or more claims of the ’838 Patent and the specific intent to encourage that infringement.

28. Renesas’s acts of inducement included, *inter alia*: providing the ’838 Infringing Products to its customers and other third parties and intending them to use the ’838 Infringing Products; providing information, advertising, and instructions for these products through its own and third-party websites (*see, e.g.*, <https://www.renesas.com/rzg2>); providing potential customers with instructions on how to obtain these products; and providing support and training to enable customers to use the ’838 Infringing Products in an infringing manner (*see, e.g.*, <https://academy.renesas.com/?eid=1405>).

29. On information and belief, Renesas has contributed to infringement of one or more claims of the '838 Patent under 35 U.S.C. § 271(c), including, but not limited to Claim 11, by offering to sell or selling within the United States and/or importing into the United States without authorization one or more component of the '838 Infringing Products (or products of which the '838 Infringing Products are components) with the knowledge (at least as of May 14, 2019) that such component(s) are especially made or especially adapted for use in an infringement of the '838 Patent and are not staple articles of commerce suitable for substantial non-infringing use.

30. Renesas has directly and indirectly infringed the '838 Patent and is thus liable for infringement of the '838 Patent pursuant to 35 U.S.C. § 271.

31. Vantage Micro has suffered, and continues to suffer, damages as a result of Renesas's infringement of the '838 Patent.

32. Renesas continued to infringe the '838 Patent from at least May 14, 2019 until its expiration, despite being on notice of the '838 Patent and its infringement. Renesas has therefore infringed the '838 Patent knowingly, willfully, deliberately, and in disregard of Plaintiff's patent rights since at least May 14, 2019, at least by infringing with actual knowledge of its direct and indirect infringement or while remaining willfully blind to the fact of its direct and indirect infringement. As a result of at least this conduct, Vantage Micro is entitled to enhanced damages under 35 U.S.C. § 284 and to attorneys' fees and costs under 35 U.S.C. § 285.

33. Vantage Micro reserves the right to modify its infringement theories as discovery progresses in this case. Vantage Micro shall not be estopped for purposes of its infringement contentions or its claim constructions by the claim charts that it provides with this Complaint. Vantage Micro intends the claim chart (Exhibit 5) for the '838 patent to satisfy the notice

requirements of Rule 8(a)(2) of the Federal Rule of Civil Procedure. The claim chart is not Vantage Micro's preliminary or final infringement contentions or preliminary or final claim construction positions.

COUNT II - INFRINGEMENT OF U.S. PATENT NO. 7,414,606

34. Vantage Micro incorporates and realleges the preceding paragraphs as if fully set forth herein.

35. At least as of May 14, 2019, Vantage Micro placed Renesas on actual notice of the '606 Patent and actual notice that its actions constituted and continue to constitute infringement of the '606 Patent.

36. On information and belief, Renesas has infringed and continues to infringe one or more claims of the '606 Patent, including but not limited to Claim 6, pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing in the United States without authority products, devices, systems, and/or components of systems that detect, or support the detection of, monitors, including, but not limited to, Liquid Crystal Display ("LCD"), Light-Emitting Diode ("LED"), and Plasma Display Panel ("PDP") monitors using various connection interfaces or "ports," including, but not limited to, High-Definition Multimedia Interface ("HDMI"), DisplayPort ("DP"), and/or Digital Visual Interface ("DVI") connections that support or comply with the HDMI, DP, and/or DVI specification ("'606 Infringing Products"). The '606 Infringing Products include as examples, Renesas's microcontrollers and microprocessors (e.g., RX series such as RX634), regenerators and evaluation kits (e.g., ISL54100AHDMI-EVALZ and ISL54105ACRZ-EVALZ), and SoC solutions (e.g., R32C/M32C, SH-2, RL, RX, RX family of MCU SOC products).

37. Discovery is expected to uncover the full extent of Renesas's infringement of the '606 Patent beyond the '606 Infringing Products already identified through public information.

38. Attached hereto as Exhibit 6, and incorporated by reference herein, is a claim chart detailing how a '606 Infringing Product, Renesas's evaluation kit ISL54100AHDMI-EVALZ, ISL54105ACRZ-EVALZ with evaluation board (ISL54100A or ISL54105A), infringes independent Claim 6 of the '606 Patent. Each and every element of Claim 6 is found in this Renesas product as shown in Exhibit 6. Renesas is (by its actions) directly infringing, literally infringing, and/or infringing the '606 Patent under the doctrine of equivalents. Renesas is thus liable for infringement of the '606 Patent pursuant to 35 U.S.C. § 271.

39. On information and belief, Renesas has induced and continues to induce infringement of one or more claims of the '606 Patent, including, but not limited to Claim 6, pursuant to 35 U.S.C. § 271(b), by encouraging its customers of the '606 Infringing Products and other third parties (including, *inter alia*, the downstream customers of its customers) to make, use, sell, offer to sell, and/or import in the United States without authorization the '606 Infringing Products (or products of which the '606 Infringing Products are components).

40. Renesas's acts of inducement include, *inter alia*: providing the '606 Infringing Products to its customers and other third parties and intending them to use the '606 Infringing Products with hardware, software, and other infrastructure that enable and/or make use of these products; providing information, advertising, and instructions for these products through its own and third-party websites (*see, e.g.*, <https://www.renesas.com/cn/en/products/software-tools/boards-and-kits/eval-kits/isl5410xx-evalz.html>); encouraging customers and other third parties to use the '606 Infringing Products (*e.g.*, <https://www.renesas.com/in/en/products/audio-video/dvi-hdmi/video-dvi-hdmi.html>); providing instructions on how to use the '606 Infringing

Products (e.g., <https://www.renesas.com/in/en/products/audio-video/dvi-hdmi/video-dvi-hdmi.html#documents>); and providing support and training to enable customers to use the '606 Infringing Products (*see, e.g.*, <https://www.renesas.com/in/en/support/contact.html>).

41. For example, Renesas's technical documentation provides detailed information assisting users and customers utilizing the '606 Infringing Products to configure such products for use with HDMI, DisplayPort, and/or DVI connections. *See, e.g.*, Operation Manual for Intersil's 4:1 and 1:1 TMDS (HDMI) Regenerator Evaluation Kits User Manual ("User Manual"), *available at* <https://www.renesas.com/us/en/www/doc/guide/an1453.pdf> (last accessed Aug. 6, 2019).

42. Renesas performed acts of inducement despite its actual knowledge since at least May 14, 2019 of the '606 Patent and its knowledge that the specific actions it actively induced and continues to actively induce on the part of its customers and other third parties constitute infringement of the '606 Patent. At the very least, because Renesas has been, and remains, on notice of the '606 Patent and the accused infringement, it has been, and remains, willfully blind regarding the infringement that it has induced and continues to induce.

43. On information and belief, Renesas has contributed to, and continues to contribute to, infringement of one or more claims of the '606 Patent, including but not limited to Claim 6, pursuant to 35 U.S.C. § 271(c) by offering to sell or selling within the United States, importing and/or supplying in the United States without authority one or more components of the '606 Infringing Products (or products of which the '606 Infringing Products are components) with the knowledge (at least as of May 14, 2019) that such components are especially made or especially adapted for use in an infringement of the '606 Patent and are not staple articles of commerce suitable for substantial non-infringing use.

44. For example, these components detect, or support the detection of, a monitor and are also the critical and material component to displaying, or controlling the display of, images on mobile phones, personal computers, servers, notebook computers, televisions, and other consumer media products according to the claimed invention. Renesas supplied, and continues to supply, system on-chip components, products, or devices, including, without limitation, the '606 Infringing Products, or components thereof, with the knowledge of the '606 Patent and with the knowledge that these components constitute critical and material parts of the claimed inventions of the '606 Patent. Moreover, Renesas knows at least by virtue of its knowledge of its own products and the '606 Patent that these components are especially made and/or especially adapted for use as claimed in the '606 Patent and there is no substantial non-infringing use of these components.

45. Vantage Micro has suffered, and continues to suffer, damages as a result of Renesas's infringement of the '606 Patent.

46. Renesas has continued to infringe the '606 Patent since at least May 14, 2019, despite being on notice of the '606 Patent and its infringement. Renesas has therefore infringed the '606 Patent knowingly, willfully, deliberately, and in disregard of Plaintiff's patent rights since at least May 14, 2019, at least by performing acts of infringement with actual knowledge of its direct and indirect infringement or while remaining willfully blind to the fact of its direct and indirect infringement. As a result of at least this conduct, Vantage Micro is entitled to enhanced damages under 35 U.S.C. § 284 and to attorneys' fees and costs under 35 U.S.C. § 285.

47. Vantage Micro reserves the right to modify its infringement theories as discovery progresses in this case. Vantage Micro shall not be estopped for purposes of its infringement contentions or its claim constructions by the claim charts that it provides with this Complaint.

Vantage Micro intends the claim chart (Exhibit 6) for the '606 Patent to satisfy the notice requirements of Rule 8(a)(2) of the Federal Rule of Civil Procedure. The claim chart is not Vantage Micro's preliminary or final infringement contentions or preliminary or final claim construction positions.

COUNT III - INFRINGEMENT OF U.S. PATENT NO. 6,546,508

48. Vantage Micro incorporates and realleges the preceding paragraphs as if fully set forth herein.

49. At least as of the filing and service of this Complaint, VantageMicro placed Renesas on actual notice of the '508 Patent and actual notice that its actions constituted and continue to constitute infringement of the '508 Patent.

50. On information and belief, Renesas has infringed and continues to infringe one or more claims of the '508 Patent, including but not limited to Claim 1, pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, at least by its use of its APC/FDC methodology or a similar system at its fabrication facilities in the United States to manufacture or produce semiconductor products ("508 Infringing Products").

51. Discovery is expected to uncover the full extent of Renesas's infringement of the '508 Patent beyond the '508 Infringing Products already identified through public information.

52. Attached hereto as Exhibit 7, and incorporated by reference herein, is a claim chart detailing how Renesas's implementation of its APC/FDC methodology at its fabrication facilities satisfies each element of Claim 1 of the '508 Patent.

53. On information and belief, Renesas implements substantially similar methods throughout its fabrication facilities in the United States and overseas and imports the products it manufactures overseas into the United States.

54. On information and belief, Renesas has infringed at least Claim 1 of the '508 Patent, pursuant to 35 U.S.C. § 271(g), by importing into the United States, selling, offering to sell, or using within the United States products that Renesas or a corporate affiliate of Renesas has manufactured, produced, or created overseas using a process that meets each step of at least one method claim of the '508 Patent.

55. Renesas has directly infringed the '508 Patent and is thus liable for infringement of the '508 Patent pursuant to 35 U.S.C. § 271.

56. Vantage Micro has suffered, and continues to suffer, damages as a result of Renesas's infringement of the '508 Patent.

57. Vantage Micro reserves the right to modify its infringement theories as discovery progresses in this case. Vantage Micro shall not be estopped for purposes of its infringement contentions or its claim constructions by the claim charts that it provides with this Complaint. Vantage Micro intends the claim chart (Exhibit 7) for the '508 Patent to satisfy the notice requirements of Rule 8(a)(2) of the Federal Rule of Civil Procedure. The claim chart is not Vantage Micro's preliminary or final infringement contentions or preliminary or final claim construction positions.

COUNT IV - INFRINGEMENT OF U.S. PATENT NO. 9,959,593

58. Vantage Micro incorporates and realleges the preceding paragraphs as if fully set forth herein.

59. At least as of May 14, 2019, VantageMicro placed Renesas on actual notice of the '593 Patent and actual notice that its actions constituted infringement of the '593 Patent.

60. Renesas infringed one or more claims of the '593 Patent including, but not limited to, Claim 1 pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by

making, using, selling, offering to sell, and/or importing in the United States without authority, microprocessors, microcontrollers, devices, systems, and/or components of systems that control, or include a memory controller that controls, memory channels to provide simultaneous access to data for CPU and data for clients in a unified system/graphics memory (“’593 Infringing Products”). The ’593 Infringing Products include, as examples and without limitation, Renesas’s microcontrollers and microprocessors as well as SOC solutions (e.g., RZ/G1M, RZ/G1, R32C/M32C, SH-2, RL, RX, and RX family of MCU SOC products).

61. Discovery is expected to uncover the full extent of Renesas’s infringement of the ’593 Patent beyond the ’593 Infringing Products already identified through public information.

62. Attached hereto as Exhibit 8, and incorporated by reference herein, is a claim chart detailing how each element of at least one claim (e.g., claim 1) of the ’593 Patent is found in a ’593 Infringing Product, the RZ/G1M microprocessor. Renesas is (through its actions) directly infringing, literally infringing, and/or infringing the ’593 Patent under the doctrine of equivalents. Renesas is thus liable for infringement of the ’593 Patent pursuant to 35 U.S.C. § 271.

63. On information and belief, Renesas induced infringement of one or more claims of the ’593 Patent, including, but not limited to, Claim 1, pursuant to 35 U.S.C. § 271(b) by encouraging its customers and other third parties (including, *inter alia*, the downstream customers of its customers) such as users, distributors, wholesalers, and retailers of the ’593 Infringing Products to make, use, sell, offer to sell, and/or import in the United States without authorization the ’593 Infringing Products (or products of which the ’593 Infringing Products are components) as described above.

64. Renesas's acts of inducement included, without limitation: providing the '593 Infringing Products to its customers and other third parties and intending them to use the '593 Infringing Products with hardware, software, and other infrastructure that enable and/or make use of these products; providing information, advertising, and instructions for these products through its own and third-party websites (*see, e.g.*, <https://www.renesas.com/tw/en/products/microcontrollers-microprocessors/rz.html>); encouraging customers and other third parties to use the '593 Infringing Products (*e.g.*, https://www.renesas.com/en-hq/media/support/partners/r-in-consortium/solution/IAIS-AB-14-0248-1_R-IN32M3_BusIFSsolution.pdf); providing instructions on how to use the '593 Infringing Products (*e.g.*, <https://www.renesas.com/tw/en/doc/products/mpumcu/doc/rz/r01uh0626ej0100-rzglm.pdf?key=d0629ec89ed67317872be00a748868d5> and <https://www.renesas.com/tw/zh/doc/products/mpumcu/doc/rz/r01uh0543ej0100-rzg.pdf?key=87040d19bb705c4178acd658f19d2e0f>); and providing support and training to enable customers to use the '593 Infringing Products (*see, e.g.*, <https://www.renesas.com/in/en/support/contact.html>)).

65. For example, Renesas's technical documentation supplied with a '593 Infringing Product, the RZ/G1M microprocessor, offers instructions to users to configure the product for controlling memory channels to provide simultaneous access to data for CPU and data for clients in a unified system/graphics memory. *See, e.g.*, RZ/G1M User's Manual ("EZ/G1M User Manual"), *available at* <https://www.renesas.com/tw/en/doc/products/mpumcu/doc/rz/r01uh0626ej0100-rzglm.pdf?key=d0629ec89ed67317872be00a748868d5> (last accessed Aug. 6, 2019) and RZ/G1

User's Manual ("EZ/G User Manual"), *available at*

<https://www.renesas.com/tw/zh/doc/products/mpumcu/doc/rz/r01uh0543ej0100-rzg.pdf?key=87040d19bb705c4178acd658f19d2e0f> (last accessed Aug. 6, 2019).

66. Renesas performed acts of inducement despite its actual knowledge since at least May 14, 2019, of the '593 Patent and its knowledge that the specific actions it actively induced on the part of its customers and other third parties constituted infringement of the '593 Patent. At the very least, because Renesas was on notice of the '593 Patent and the accused infringement, it was willfully blind regarding the infringement that it has induced.

67. On information and belief, Renesas contributed to infringement of one or more claims of the '593 Patent, including but not limited to Claim 1, pursuant to 35 U.S.C. § 271(c) by offering to sell or selling within the United States and/or importing into the United States without authorization one or more components of the '593 Infringing Products (or products of which the '593 Infringing Products are components) with the knowledge (at least as of May 14, 2019) that such components are especially made or especially adapted for use in an infringement of the '593 Patent and are not staple articles of commerce suitable for substantial non-infringing use.

68. For example, these components control memory channels to provide simultaneous access to data for a CPU and data for a client in a unified system/graphics memory and are critical and material components to providing a unified memory for smartphones, tablets, desktops, laptops, televisions, and other consumer products according to the claimed invention (at least one claim of the '593 Patent). Renesas supplied these components, including, without limitation, the '593 Infringing Products, with the knowledge of the '593 Patent and with the knowledge that these components constitute critical and material parts of the claimed inventions of the '593 Patent. Moreover, Renesas knows at least by virtue of its knowledge of its own

products and the '593 Patent that these components are especially made and/or especially adapted for use as claimed in the '593 Patent and there was no substantial non-infringing use of the claimed elements of these components.

69. Vantage Micro suffered damages as a result of Renesas's infringement of the '593 Patent.

70. Renesas has continued to infringe the '593 Patent since at least May 14, 2019, despite being on notice of the '593 Patent and its infringement. Renesas has therefore infringed the '593 Patent knowingly, willfully, deliberately, and in disregard of Plaintiff's patent rights since at least May 14, 2019, at least by performing acts of infringement with actual knowledge of its direct and indirect infringement or while remaining willfully blind to the fact of its direct and indirect infringement. As a result of at least this conduct, Vantage Micro is entitled to enhanced damages under 35 U.S.C. § 284 and to attorneys' fees and costs under 35 U.S.C. § 285.

71. Vantage Micro reserves the right to modify its infringement theories as discovery progresses in this case. Vantage Micro shall not be estopped for purposes of its infringement contentions or its claim constructions by the claim charts that it provides with this Complaint. Vantage Micro intends the claim chart (Exhibit 8) for the '593 Patent to satisfy the notice requirements of Rule 8(a)(2) of the Federal Rule of Civil Procedure. The claim chart is not Vantage Micro's preliminary or final infringement contentions or preliminary or final claim construction positions.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff Vantage Micro demands judgment for itself and against Defendant Renesas as follows:

a. A judgment that Renesas has infringed, and continues to infringe, one or more claims of each of the Asserted Patents;

b. A judgment that Renesas has induced infringement, and continues to induce infringement, of one or more claims of each of the Asserted Patents other than the '508 Patent;

c. A judgment that Renesas has contributed to, and continues to contribute, to the infringement of one or more claims of each of the Asserted Patents other than the '508 Patent;

d. A judgment that Renesas has willfully infringed one or more claims of each of the Asserted Patents;

e. A judgment awarding Vantage Micro all damages adequate to compensate for Renesas's infringement, and in no event less than a reasonable royalty for Renesas's acts of infringement, including all pre-judgment and post-judgment interest at the maximum rate allowed by law;

f. A judgment awarding Vantage Micro treble damages pursuant to 35 U.S.C. § 284 as a result of Renesas's willful conduct;

g. A judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285 and awarding Vantage Micro its reasonable attorneys' fees; and

h. A judgment awarding Vantage Micro such other relief as the Court may deem just and equitable.

DEMAND FOR JURY TRIAL

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, Plaintiff Vantage Micro demands a trial by jury of this action.

Dated: October 8, 2019

DEVLIN LAW FIRM LLC

/s/ Alex Chan

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